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35525 7590 08/25/2009

IBM CORP (YA)
C/O YEE & ASSOCIATES PC
P.O. BOX 802333
DALLAS, TX 75380

EXAMINER

HO, BINH VAN

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 08/25/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,899	10/30/2003	Steven Francis Best	AUS920030792US1	9243

TITLE OF INVENTION: METHOD AND APPARATUS FOR INCREASING EFFICIENCY OF DATA STORAGE IN A FILE SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	11/25/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

35525 7590 08/25/2009

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or by facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,899	10/30/2003	Steven Francis Best	AUS920030792US1	9243

TITLE OF INVENTION: METHOD AND APPARATUS FOR INCREASING EFFICIENCY OF DATA STORAGE IN A FILE SYSTEM

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	11/25/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
HO, BINH VAN	2163	707-205000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

"Fee Address" indication (or "Fee Address" indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys

or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

Issue Fee
 Publication Fee (No small entity discount permitted)
 Advance Order - # of Copies _____

A check is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS; SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/697,899	10/30/2003	Steven Francis Best	AUS920030792US1	9243
35525	7590	08/25/2009		
IBM CORP (YA) C/O YEE & ASSOCIATES PC P.O. BOX 802333 DALLAS, TX 75380				EXAMINER HO, BINH VAN
				ART UNIT 2163 PAPER NUMBER DATE MAILED: 08/25/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 483 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 483 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/697,899	BEST ET AL.	
	Examiner	Art Unit	
	BINH V. HO	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 07/16/2009.

2. The allowed claim(s) is/are 37,38,40,41 and 44-48.

3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of the:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached 1) hereto or 2) to Paper No./Mail Date _____.

(b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)

5. Notice of Informal Patent Application

2. Notice of Draftsperson's Patent Drawing Review (PTO-948)

6. Interview Summary (PTO-413),
Paper No./Mail Date _____.

3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____.

7. Examiner's Amendment/Comment

4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material

8. Examiner's Statement of Reasons for Allowance

9. Other _____.

/Kuen S Lu/
Primary Examiner, Art Unit 2156

/Binh V Ho/
Examiner, Art Unit 2163

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and /or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.3.12. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. The following claim has been amended upon agreement by applicant during a telephone conversation with Mr. Rudolf Siegesmund on 08/13/2009.

Amendments to claims 37-38, 44-45, and 47-48:

Claim 37 (Currently Amended):

A computer implemented method comprising:

receiving, using a processor, a command to store a file in a file system having an inode, wherein the inode is usable to store metadata associated with the file; responsive to the file having a size that is greater than a block size of blocks in the file system, storing a plurality of data of the file only in an integer number of blocks, wherein a first remainder data of the file remains after storing, and wherein the first remainder data is less than the block size; placing the first remainder data directly into the inode; [[and]]

responsive to a second remainder data of the file still remaining after the first remainder data is placed into the inode, placing the second remainder data into an unused space of a partially used block of the file system, wherein the partially used block also stores data of another file; and

responsive to the partially used block becoming full from storing the second remainder data in the partially used block, removing the partially used block from a list of free shared blocks, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block.

Claim 38 (Currently Amended)

The computer implemented method of claim 37 wherein placing the first remainder data directly into the inode further comprises placing the first remainder data in an extension area of the inode formerly reserved for the metadata, and the computer implemented method further comprises:

updating a mode field in the inode to designate that the first remainder data of the file has been stored in the inode;

prior to performing the step of placing the second remainder data into an unused space of the partially used block of the file system, determining whether the partially used block exists and whether the partially used block has a sufficient free space to store the second remainder data; and

updating the mode field in the inode to designate that the second remainder data has been stored in the partially used block[[; and]]

~~responsive to the partially used block becoming full from storing the second remainder data in the partially used block, removing the partially used block from a list of free shared blocks, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block.~~

Claim 44 (Currently Amended)

A recordable-type computer readable computer readable medium on which is stored a computer program product executable in a data processing system, the computer program product comprising:

instructions for receiving a command to store a file in a file system having an inode, wherein the inode is usable to store metadata associated with the file;

instructions for, responsive to the file having a size that is greater than a block size of blocks in the file system, storing a plurality of data of the file only in an integer number of blocks, wherein a first remainder data of the file remains after storing, and wherein the first remainder data is less than the block size;

instructions for placing the first remainder data directly into the inode; [[and]]

instructions for placing a second remainder data into an unused space of a partially used block of the file system responsive to the second remainder data of the

file still remaining after the first remainder data is placed into the inode, wherein the partially used block also stores data of another file; and

instructions for removing the partially used block from a list of free shared blocks responsive to the partially used block becoming full from storing the second remainder data in the partially used block, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block.

Claim 45 (Currently Amended)

The recordable-type computer readable medium of claim 44 wherein placing the first remainder data directly into the inode further comprises placing the first remainder data in an extension area of the inode formerly reserved for the metadata, and the recordable-type computer readable medium further comprises:

instructions for updating a mode field in the inode to designate that the first remainder data of the file has been stored in the inode;

instructions for, prior to performing the step of placing the second remainder data into an unused space of the partially used block of the file system, determining whether the partially used block exists and whether the partially used block has a sufficient free space to store the second remainder data; and

instructions for updating the mode field in the inode to designate that the second remainder data of the file has been stored in the partially used block[[; and]]

~~instructions for removing the partially used block from a list of free shared blocks responsive to the partially used block becoming full from storing the second remainder data in the partially used block, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block.~~

Claim 47 (Currently Amended)

A data processing system comprising:

a bus system;

a communications unit connected to the bus system;

a memory connected to the bus system, wherein the memory includes a set of instructions; and

a processing unit connected to the bus system, wherein the processing unit executes the set of instructions comprising:

instructions to receive a command to store a file in a file system having an inode, wherein the inode is usable to store metadata associated with the file;

instructions to store data of the file only in an integer number of blocks responsive to the file having a size that is greater than a block size of blocks in the file system, wherein a first remainder data of the file remains after storing, and wherein the first remainder data is less than the block size;

instructions to place the first remainder data directly into the inode;

[[and]]

instructions to place a second remainder data into an unused space of a partially used block of the file system responsive to the second remainder data of the file still remaining after the first remainder data is placed into the inode, wherein the partially used block also stores data of another file; and

instructions to remove the partially used block from a list of free shared blocks responsive to the partially used block becoming full from storing the second remainder data in the partially used block, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block.

Claim 48 (Currently Amended)

The data processing system of claim 47, wherein the instructions to place the first remainder data directly into the inode further comprise instructions to place the first remainder data in an extension area of the inode formerly reserved for the metadata, and the data processing system further comprises:

instructions to update a mode field in the inode to designate that the first remainder data of the file has been stored in the inode;

instructions to determine whether the partially used block exists and whether the partially used block has a sufficient free space to store the second remainder data prior to performing the step of placing the second remainder data into an unused space of the partially used block of the file system;

instructions to update the mode field in the inode to designate that the second remainder data has been stored in the partially used block; and

~~instructions to remove the partially used block from a list of free shared blocks responsive to the partially used block becoming full from storing the second remainder data in the partially used block, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block.~~

The Examiner's amendment has been made in order to place the application in a condition for allowance.

Reasons for Allowance

3. The following is an examiner's statement of reason for allowance:

Claims 37, 44, and 47 are considered allowable since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Hitz (U.S. 2002/0091670) does not teach the claimed invention having a computer implemented method/ computer program product/system comprising responsive to a second remainder data of the file still remaining after the first remainder data is placed into the inode, placing the second remainder data into an unused space of a partially used block of the file system, wherein the partially used block also stores data of another file; and responsive to the partially used block becoming full from storing the second remainder data in the partially used block, removing the partially used block

from a list of free shared blocks, wherein, for each free shared block on the list of free shared blocks, the list of free shared blocks contains a block number, a free byte quantity, and a pointer to a next free shared block with a combination of all recitations as defined in claims 37, 44, and 47.

Therefore, claims 37-38, 40-41, and 44-48 are presently allowed.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Inquiry

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh V. Ho whose telephone number is 571 272 8583. The examiner can normally be reached on M-F from 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on 571 272 1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kuen S Lui/
Primary Examiner, Art Unit 2156

Binh V Ho
Examiner
Art Unit 2163